CLAIMS

What is claimed is:

1. A communications board comprising:

an FR-4 circuit board having a thickness of 0.06 ±10% inches;

a side-fed patch antenna having the circuit board as a dielectric spacer, the antenna further having:

a ground plane on a first side of the circuit board, wherein the ground plane has a width of at least 1.875 ±10% inches and a length of at least 2.25 ±10% inches;

a rectangular patch on a second side of the circuit board opposite the first side, wherein the patch has a width of 1.5 ±10% inches and a length of 1.164 ±10% inches; and

a feed connected to a side of the patch halfway along the width, wherein the feed has a width of 0.07 ±10% inches and a length of at least 0.625 ±10% inches.

2. The board of claim 1, wherein the patch antenna is configured to operate between 2.400 and 2.483 GHz.

3. The board of claim 1, wherein the patch and feed comprise copper cladding having a thickness of approximately 0.063 inches.

4. The communications board of claim 1, further comprising:

a radio-frequency ("RF") module coupled to the patch antenna and configured to convert signals between baseband and an operating frequency range of the patch antenna.

5. The communications board of claim 4, further comprising:

a USB bus interface that couples the RF module to a USB bus.

6. A set-top box comprising:

a metallic enclosure having a front face;

a non-metallic bezel attached to the front face of the enclosure and defining an interstitial space between the front face and the bezel; and

a communications board located in said interstitial space, wherein the communications board includes:

an FR-4 circuit board having a thickness of 0.06 ±10% inches; and

a side-fed patch antenna having the circuit board as a dielectric spacer.

7. The set-top box of claim 6, wherein the patch antenna further includes:

a ground plane on a first side of the circuit board, wherein the ground plane has a width of at least 1.875 ±10% inches and a length of at least 2.25 ±10% inches;

a rectangular patch on a second side of the circuit board opposite the first side, wherein the patch has a width of 1.5 ±10% inches and a length of 1.164 ±10% inches; and

a feed connected to a side of the patch halfway along the width, wherein the feed has a width of 0.07 ±10% inches and a length of at least 0.625 ±10% inches.

8. The set-top box of claim 6, wherein the patch antenna is configured to operate between 2.400 and 2.483 GHz.

9. The set-top box of claim 7, wherein the patch and feed comprise copper cladding having a thickness of approximately 0.063 inches.

10. The set-top box of claim 6, further comprising:

a radio-frequency ("RF") module coupled to the patch antenna and configured to convert signals between baseband and an operating frequency range of the patch antenna.

11. The set-top box of claim 10, further comprising:

a USB bus interface coupled to the RF module; and

a USB bus that couples the USB bus interface to electronic circuitry in said metallic enclosure.

12. The set-top box of claim 6, wherein the communications board is mounted flush against the front face of the metallic enclosure.

13. The set-top box of claim 6, wherein the communications board is mounted about 1.23 inches from the front face of the metallic enclosure.

14. The set-top box of claim 6, wherein the patch antenna is less than about 0.5 inches from the bezel.